



LANSING 515-G SERIES LOW FREQUENCY HORN LOUDSPEAKERS



DESCRIPTION

The Altec Lansing 515-G Series of loudspeakers are designed for unsurpassed performance when used in low frequency horn and vented horn enclosures. They are the highest performance low frequency drivers that Altec produces. When the ultimate in sound quality, efficiency, and response is needed, the 515-G Series is the answer.

In-depth research into the properties of low frequency horns and vented horns has produced three drivers which are optimum for horn applications. When coupled with an appropriate horn, the 515-G Series loudspeakers provide the best possible combination of wide response, high efficiency, low distortion, and directivity control.

The Lansing 515-G Series loudspeakers incorporate Altec's largest magnet structure, an edgewound aluminum flatwire voice coil, a very light cone assembly, and a low distortion cloth suspension.

The 515-8G and 515-16G carry on the Altec Lansing 515 tradition. The 515-8G provides extended bass response and extremely high linearity for optimum performance in vented horn enclosures. The 515-16G is intended for applications similar to those for the 515-8G, but where 16 ohm impedance and increased sensitivity is needed, as in dual loudspeaker enclosures such as the Altec 210/211 and 817A vented horns. Both loudspeakers are constructed of materials similar to 515's of earlier years to produce the sound made popular in theater and studio applications.

The 515-8GHP is the most efficient loudspeaker Altec has ever produced. This, coupled with high power handling, yields a speaker capable of very high sound pressure levels and good reliability. The horn-loaded design of the 515-G Series ensures that the 515-8GHP performs optimally in all vented horn enclosures.

SPECIFICATIONS

	515-8G	515-16G	515-8GHP
Type:	16-inch low frequency horn loudspeaker	16-inch low frequency horn loudspeaker	16-inch low frequency horn loudspeaker
Power Rating*:	75 watts (25 volts)	75 watts (35 volts)	200 watts (40 volts)
Frequency Response**:			
Enclosure: 828G	50-4000	55-4000	60-4000
816A	60-4000	65-4000	70-4000
817A	55-4000	60-4000	65-4000
210/211	40-4000	50-4000	50-4000
Highest Recommended Crossover Frequency:	2500 Hz	2500 Hz	2500 Hz
Sensitivity***:			
Enclosure: 828G	103 dB	104 dB	104.5 dB
816A	102 dB	103 dB	103.5 dB
817A	104.5 dB	105.5 dB	106 dB
210/211	107 dB	108 dB	108.5 dB
Impedance:	8 ohms	16 ohms	8 ohms
Thiele/Small Parameters—			
Voice Coil DC Resistance (R_E):	6.2 ohms	11.3 ohms	5.6 ohms
Nominal Free-Air Resonance (f_S):	37 Hz	37 Hz	37 Hz
Total Q (Q_{TS}):	0.269	0.215	0.187
Mechanical Q (Q_{MS}):	5.0	5.0	4.5
Electrical Q (Q_{ES}):	0.284	0.225	0.195
Equivalent Volume Compliance (V_{AS}):	12.4 ft ³	12.2 ft ³	12.1 ft ³
Reference Efficiency (η_O):	6.0%	7.5%	8.6%
Peak Linear Displacement (x_{MAX}):	0.17 in.	0.15 in.	0.12 in.
Peak Linear Volume Displacement (V_D):	22.4 in ³	19.7 in ³	15.8 in ³
Effective Piston Area of Driver Diaphragm (S_D):	131.5 in ²	131.5 in ²	131.5 in ²
Additional Parameters—			
Maximum Excursion Before Damage (Peak to Peak):	0.70 in.	0.70 in.	0.85 in.
Voice Coil Winding Depth:	0.20 in.	0.25 in.	0.31 in.
Magnetic Gap Depth:	0.47 in.	0.47 in.	0.47 in.
BL Factor (T-m):	16.4	25.1	19.1
Voice Coil Inductance:	0.58 mH	1.30 mH	0.68 mH
Voice Coil Diameter:	3 in.	3 in.	3 in.
Magnet Type:	ferrite	ferrite	ferrite
Magnet Weight:	132 oz.	132 oz.	132 oz.
Magnetic Flux Density:	15,000 gauss	15,000 gauss	15,000 gauss
Voice Coil Type:	3" diameter edge-wound aluminum ribbon	3" diameter edge-wound aluminum ribbon	3" diameter edge-wound aluminum ribbon
Frame:	Die-cast aluminum	Die-cast aluminum	Die-cast aluminum
Mounting Information—			
Baffle Opening Diameter:	15 ⁵ / ₁₆ in. (38.39 cm)	15 ⁵ / ₁₆ in. (38.39 cm)	15 ⁵ / ₁₆ in. (38.39 cm)
Mounting Bolt Circle Diameter:	17 ⁵ / ₁₆ in. (43.97 cm)	17 ⁵ / ₁₆ in. (43.97 cm)	17 ⁵ / ₁₆ in. (43.97 cm)
Loudspeaker Depth			
Rear Mounting:	6 ¹³ / ₁₆ in. (17.31 cm)	6 ¹³ / ₁₆ in. (17.31 cm)	6 ¹³ / ₁₆ in. (17.31 cm)
Front Mounting:	6 in. (15.24 cm)	6 in. (15.24 cm)	6 in. (15.24 cm)
Weight:	30 lbs. (13.6 kg)	30 lbs. (13.6 kg)	30 lbs. (13.6 kg)

*AES power rating (measured Power = E²/R, using Pink Noise with a crest factor of 6 dB and a band-limit of 60-600 Hz).

**Low frequency limit is the 3 dB down point using the particular cabinet and the Thiele/Small parameters of the loudspeaker.

***Measured in the free-field at 4' on axis with one watt (Power = E²/R) of pink noise band-limited from 100 to 1000 Hz.

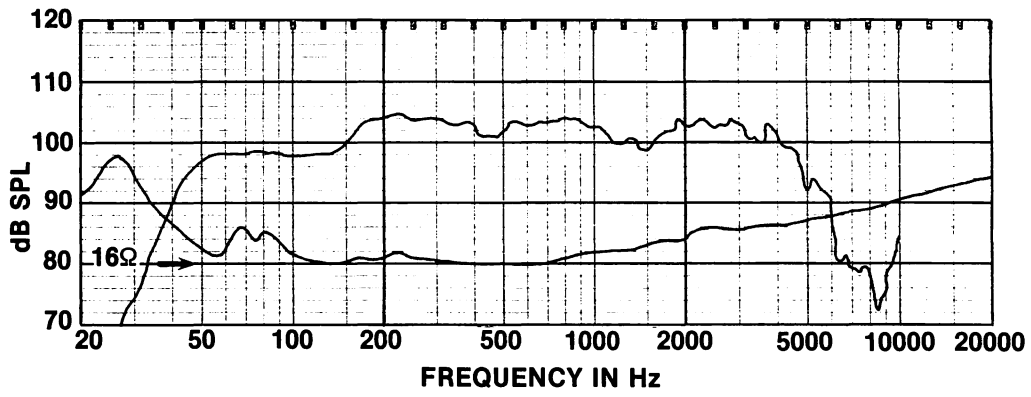


Figure 1. Frequency Response and Impedance of 515-16G in 828G Enclosure

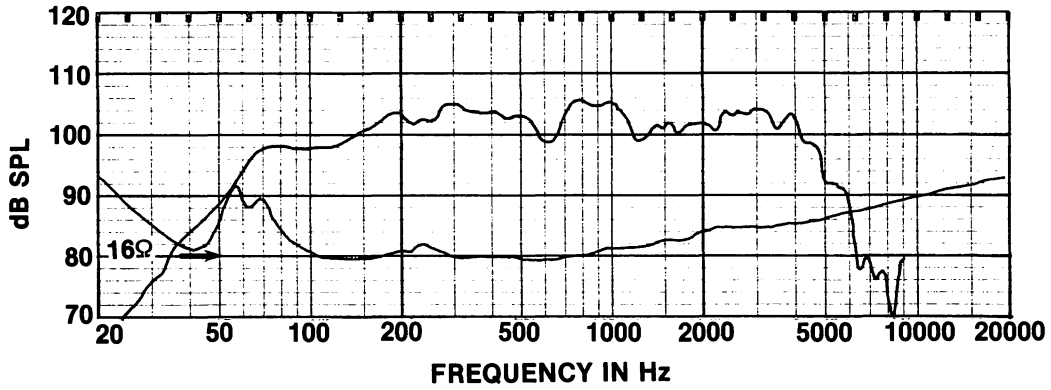


Figure 2. Frequency Response and Impedance of 515-16G in 816A Enclosure

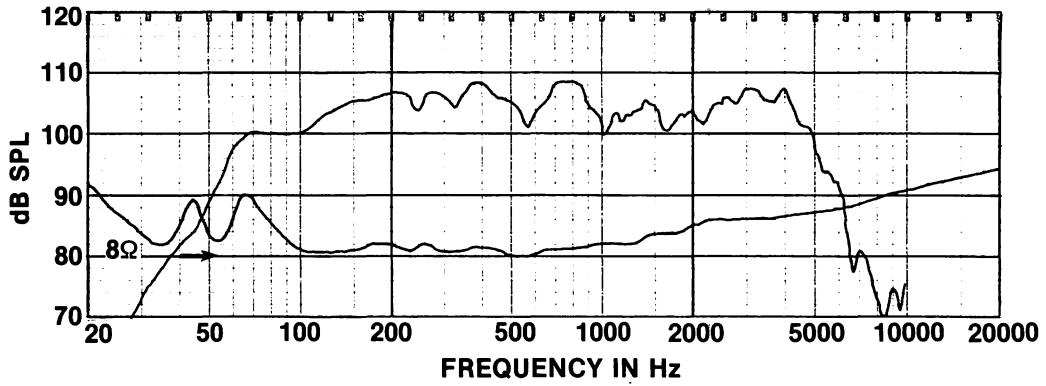


Figure 3. Frequency Response and Impedance of Two 515-16G's in 817A Enclosure

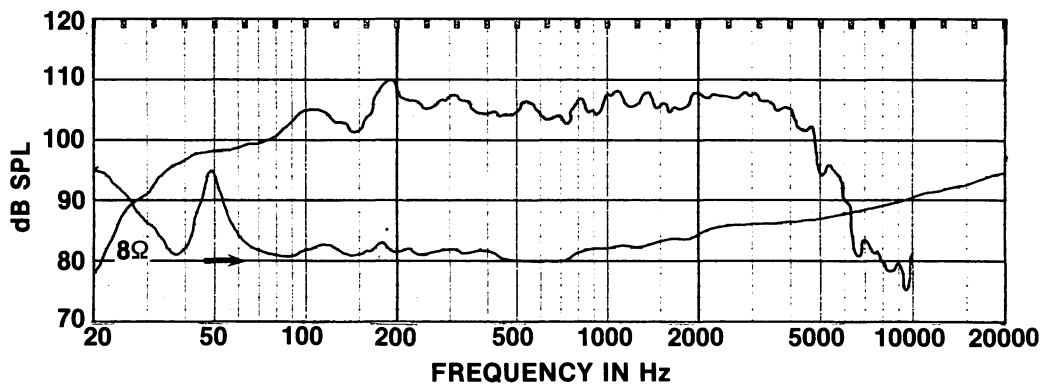
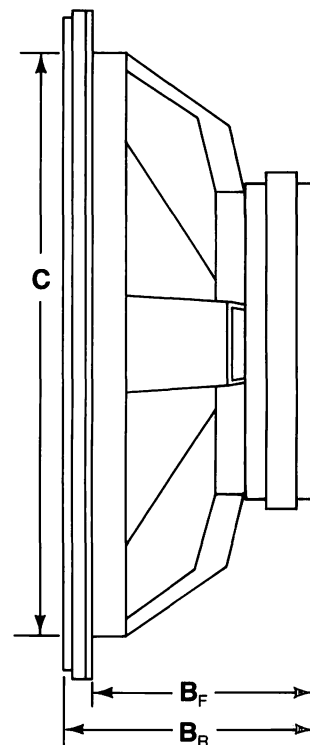
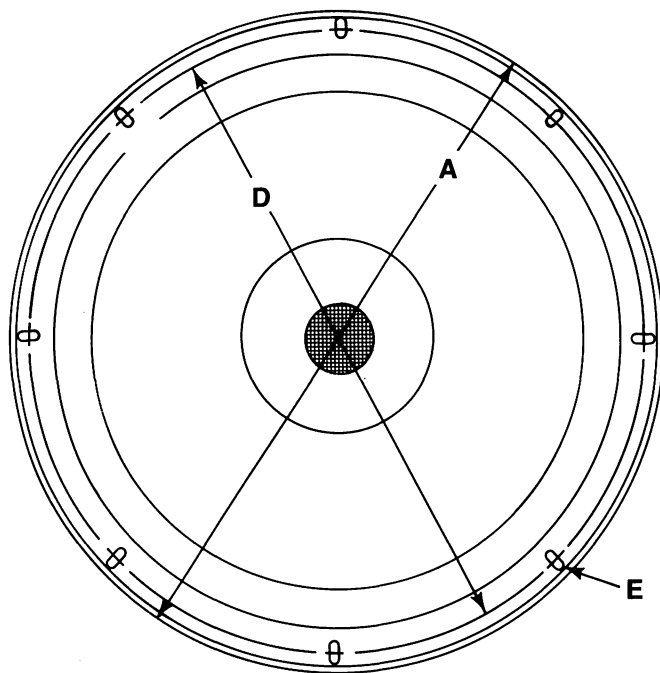


Figure 4. Frequency Response and Impedance of Two 515-16G's in 210A Enclosure



LOUDSPEAKER MOUNTING DIMENSIONS

- | | |
|---|--|
| (A) Loudspeaker Diameter: 16" (40.64 cm) | (C) Baffle Opening Diameter: 14 $\frac{1}{8}$ " (35.87 cm) |
| (B _F) Depth When Front Mounted: 5 $\frac{1}{16}$ " (14.13 cm) | (D) Bolt Circle Diameter: 15" (38.1 cm) |
| (B _R) Depth When Rear Mounted: 6 $\frac{3}{8}$ " (16.20 cm) | (E) Bolt Hole Slots: $\frac{1}{4}$ " (0.64 cm) x $\frac{3}{4}$ " (2.02 cm);
8 slots spaced 45° apart. |

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The low frequency loudspeaker shall meet the following criteria. Power rating, up to _____ watts, measured E^2/R , using a crest factor of 6 dB and band-limited from 60 to 600 Hz. Frequency response, uniform from _____ to 4000 Hz when used in the _____ Enclosure. Pressure sensitivity, _____ dB SPL when measured in the free field at 4' on axis with 1 watt (power - E^2/R) of pink noise band-limited from 100 to

1000 Hz. Nominal impedance, _____ ohms. Nominal free air cone resonance, 37 Hz. The voice coil shall be 3" in diameter of edge-wound aluminum ribbon, driven by a 132-ounce ferrite magnet structure having a flux density of 15,000 gauss. Dimensions, 16" diameter x 6 $\frac{1}{16}$ " deep. Weight, 30 pounds.

The low-frequency loudspeaker shall be the ALTEC Lansing Model _____.



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